IN THE CLAIMS:

Please cancel claims 1-27 without prejudice or disclaimer, and substitute new claims 28-54 therefor as follows:

Claims 1-27 (Cancelled).

28. (New) A method for generating electrical energy within a tyre, comprising:

associating a housing including a piezoelectric element with a tyre portion in correspondence with a tyre tread area, the piezoelectric element being disposed substantially along a plane orthogonal to a radial direction of said tyre and having a first end substantially fixed to said housing and a second end fixed to a loading mass, a gap being formed between at least one inner wall of said housing and an outer surface of said loading mass;

rotating said tyre on a rolling surface at a first rotation speed lower than a given speed, so as to cause said loading mass to oscillate within said gap, thereby leading to a first deformation of said piezoelectric element during said tyre rotation;

rotating said tyre on said rolling surface at a second rotation speed higher than said given speed, so as to cause said loading mass to contact said inner wall during a first fraction of a complete tyre revolution, during said first fraction said tread area corresponding to said tyre portion being not in contact with the rolling surface, and to cause said loading mass to oscillate within said gap during a second fraction of a complete tyre revolution, during said second fraction said tread area corresponding to said tyre portion being in contact with the rolling

surface, thereby leading to a second deformation of said piezoelectric element during said tyre rotation; and

collecting electrical energy generated from said first and said second deformations of said piezoelectric element.

29. (New) The method according to claim 28, wherein said tyre portion is a portion of an inner surface of the tyre.

30. (New) The method according to claim 28, wherein the piezoelectric element has a longer side disposed substantially according to an axial direction of the tyre.

31. (New) The method according to claim 28, wherein during said rotation at said second rotation speed, said loading mass oscillates around a first equilibrium position, substantially disposed along said plane orthogonal to said radial direction of the tyre.

32. (New) The method according to claim 31, wherein during said rotation at said first rotation speed, said loading mass oscillates around a second equilibrium position within said gap, different from said first equilibrium position.

33. (New) The method according to claim 28, wherein said given speed is 30 km/h to 70 km/h.

34. (New) The method according to claim 33, wherein said given speed is 40 km/h to 60 km/h.

35. (New) A system for generating electrical energy comprising:

a tyre; and

a power supply comprising a piezoelectric element, associated with a tyre portion in correspondence with a tyre tread area;

wherein

said piezoelectric element is disposed within a housing so as to have a first end substantially fixed to said housing and a second end associated with a loading mass, a gap being formed between at least one inner wall of said housing and an outer surface of said loading mass;

said piezoelectric element is positioned substantially along a plane orthogonal to a radial direction of said tyre;

said piezoelectric element, said loading mass and said gap are sized so as to obtain:

a) during rotation of the tyre on a rolling surface at a first rotation speed lower than a given speed, an oscillation within said gap of said loading mass associated with said piezoelectric element; and

b) during rotation of the tyre on said rolling surface at a second rotation speed higher than said given speed, a contact of said loading mass with said inner wall of said housing during a first fraction of a complete tyre revolution, during said first fraction said tread area corresponding to said tyre portion being not in contact with said rolling surface, and an oscillation within said gap of said loading mass associated with said piezoelectric element during a second fraction of a complete tyre

revolution, during said second fraction said tread area corresponding to said tyre portion being in contact with the rolling surface.

36. (New) The system according to claim 35, wherein said tyre portion is a portion of an inner surface of the tyre.

37. (New) The system according to claim 35, wherein the piezoelectric element has a longer side disposed substantially according to an axial direction of the tyre.

38. (New) The system according to claim 35, wherein said given speed is 30 km/h to 70 km/h.

39. (New) The system according to claim 38, wherein said given speed is 40 km/h to 60 km/h.

40. (New) The system according to claim 35, wherein a resonance frequency of said piezoelectric element associated with said loading mass within said housing is higher than 150 Hz.

41. (New) The system according to claim 40, wherein said resonance frequency is higher than 200 Hz.

42. (New) The system according to claim 41, wherein said resonance frequency is higher than 300 Hz.

43. (New) The system according to claim 35, wherein said loading mass is lower than 3 gr.

44. (New) The system according to claim 35, wherein said loading mass is U-shaped.

45. (New) The system according to claim 35, wherein said gap has a maximum extent of 400 µm.

46. (New) The system according to claim 35, wherein said piezoelectric element is a bimorph element.

47. (New) The system according to claim 35, wherein said piezoelectric element is a planar element.

48. (New) The system according to claim 35, wherein said piezoelectric element comprises PZT.

49. (New) A system for monitoring at least one operating parameter of a tyre comprising:

a system for generating electrical energy including a power supply according to claim 35;

a sensor device comprising a measurement device adapted to measure said at least one operating parameter and a transmitter device adapted to transmit said measured parameter, associated with said power supply; and

a receiving device adapted to receive said transmitted measured parameter.

50. (New) The system according to claim 49, wherein said measurement device comprises a pressure sensor.

51. (New) The system according to claim 49, wherein said measurement device comprises a temperature sensor.

52. (New) The system according to claim 49, wherein said measurement device comprises an acceleration sensor.

53. (New) The system according to claim 49, wherein said measurement device comprises a counter of tyre revolutions.

54. (New) The system according claim 49, wherein said sensor device comprises a microcontroller adapted for and capable of enabling said measurement device and said transmitter device, associated with said power supply.